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(54) Dishwashers with control panel

(57) A dishwasher has a box-shaped control panel (6) which is removably fixed in a frontal recess (4) in the base portion (3) of the machine, with its front surface flush with the front surface of the loading door (2). An electrical connector (14) releasably connects the control and actuating devices (8-11) provided on the panel to the remainder of the wiring harness (5) of the machine. The control devices (9-11) are of the pushbutton type and can be actuated by a user by means of a foot.

The door (2) is substantially without electrical connections, and a digital display or surface (12) can be read via a window (13).

Fig. 1.

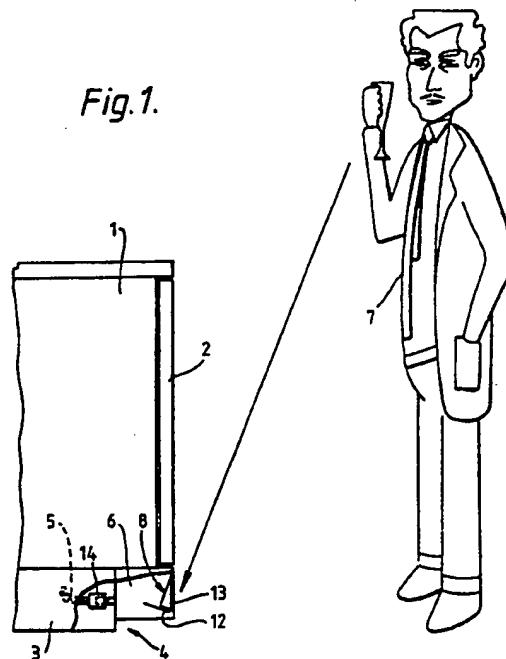
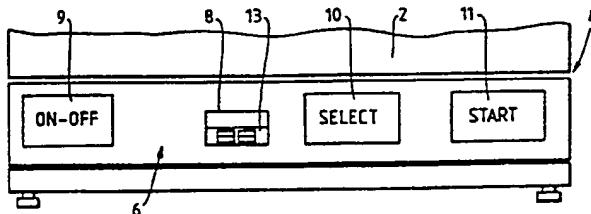


Fig. 2.



At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

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Fig. 1.

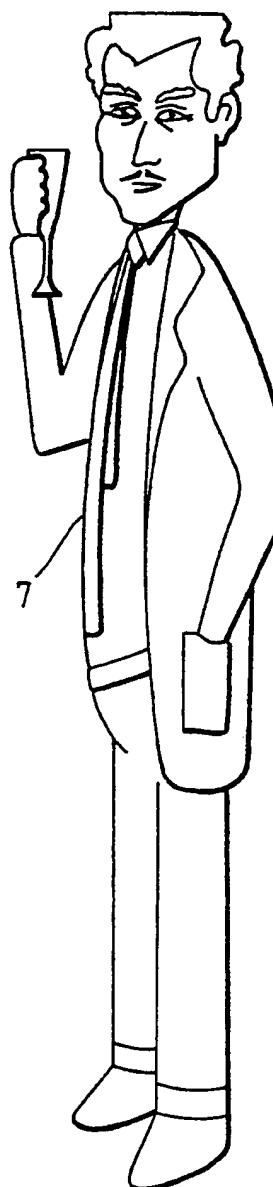
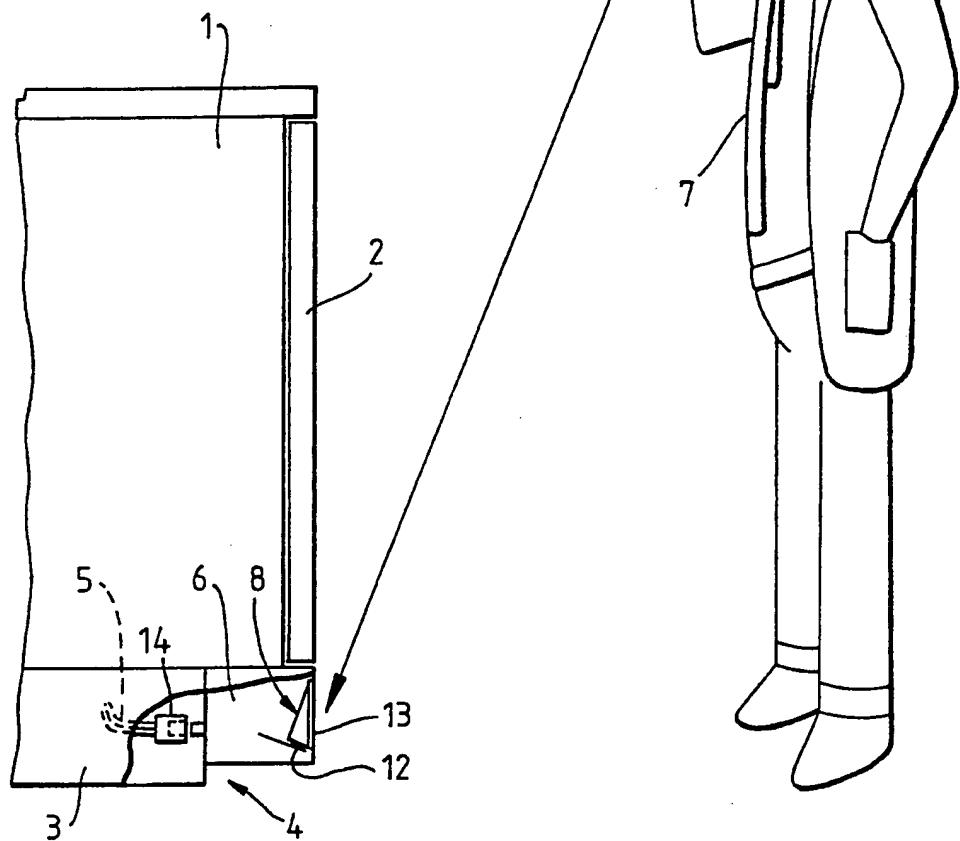
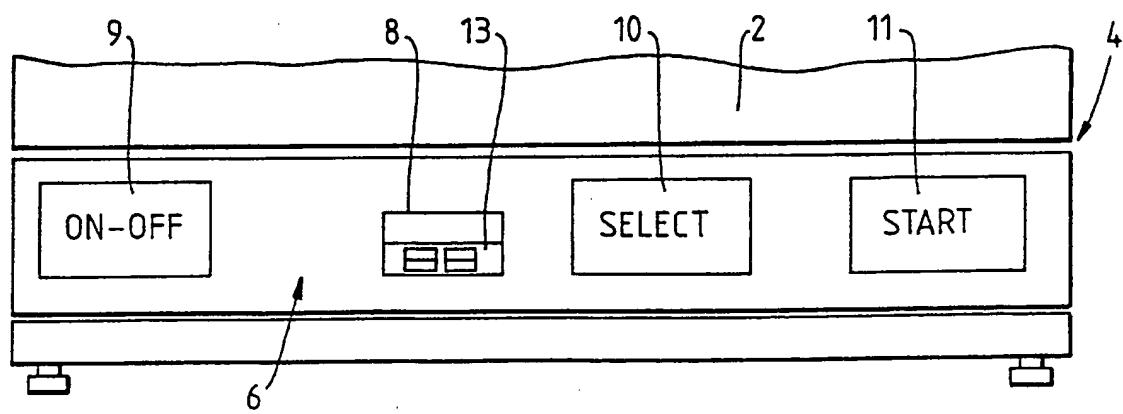


Fig. 2.



## DISHWASHERS WITH CONTROL PANEL

The present invention relates to a domestic dishwasher provided with an improved panel for the control 5 and actuating devices which is disposed in an innovative position.

As is known, dishwashers are provided with a panel comprising the various controls and devices for displaying the mode of operation of the machine, which is normally 10 mounted at a position corresponding to the upper edge of the front loading door.

Dishwashers are also known, which are designed for example as described in Australian patent no. 552 168, in which the main control devices are disposed on the upper 15 edge of the door in such a way that they are concealed and protected by a front projection portion of the worktop member of the machine when the door is closed.

That makes it possible inter alia for the front surface of the machine to be made completely free so that it 20 can be aesthetically adapted to other adjacent units.

Both the known solutions however suffer from the common disadvantage of requiring a wiring harness for electrical connections of the devices contained in the panel to the other electrical components of the machine which are 25 in substance disposed in the base portion of the machine. Therefore the connecting wiring harness must be extended through the door of the machine, with consequential known problems in terms of assembly and safety, and also limited reliability by virtue of repeated opening and closing of the 30 door.

The aim of the present invention is that of providing a dishwasher having a control panel which is capable of minimising the disadvantages of the known solutions.

35 According to the present invention, there is

provided a dishwasher with a panel for the devices for controlling and actuating the machine, comprising a casing provided with a front loading door and a base portion provided with a frontal recess, said panel being of a 5 substantially box-shaped configuration and is removably fixed in said recess in the base portion.

The features and advantages of the invention will be clear from the following description given solely by way of non-limiting example with reference to the accompanying 10 drawings in which:

Figure 1 diagrammatically shows a lateral section of part of a dishwasher according to the invention; and

Figure 2 shows a front view on an enlarged scale of a detail of the dishwasher shown in Figure 1, in 15 accordance with a preferred embodiment.

Referring to the figures, the dishwasher primarily comprises a casing 1 which in conventional manner is provided with a front loading door 2 and a base portion 3 provided with a frontal recess 4 in which are accommodated 20 the main electrical components of the machine such as the motors for actuating the circulation and discharge pumps (not shown for the sake of simplicity), which can be supplied with power by means of a wiring harness system diagrammatically indicated at 5 in Figure 1.

25 In accordance with an aspect of the invention, a box-shaped panel 6 is removably fixed in the frontal recess 4 of the base portion 3, for example by means of a snap-action latching means, screws or the like (known and not shown). The front surface of the panel 6 is preferably disposed in 30 line with the front surface of the door 2 in the closure position.

At least the front portion of the panel 6 which 35 preferably provides sealing integrity can be made of strong, detergent-resistant material for floors (for example polycarbonate). In any case the panel 6 contains all the

control and actuating devices which can be used by a user 7. Preferably such devices comprise (see Figure 2) means 8 for displaying the operating cycles of the machine, and a general on-off switch 9, a program selector 10 and a switch 5 11 for starting the selected operating cycle. In particular the display 8 is of the electronic digital type with a reading surface 12 (of suitably large dimensions) which is disposed within the panel 6 and which is suitably inclined with respect to the support surface of the machine to be 10 suitably visible for the user 7 by way of a transparent window 13 substantially aligned with the front surface of the panel. The switches 9, 11 and the selector 10 have a front actuation surface which is preferably flush with the front surface of the panel 6.

15 Advantageously the devices 9-11 are of the pushbutton type and their front actuation surface is sufficiently large (for example of an area of 50 x 70 mm) for them to be actuated by the user with a foot so that in that way the user can conveniently set, activate and/or 20 deactivate the machine, even in a situation in which he has his hands occupied or is physically unable to manipulate the controls of a panel of conventional type.

It will be appreciated that the devices 9-11 can also be predisposed to be actuated by means of a remote 25 control.

At any event the panel 6 permits pre-assembly of all the control and actuating devices provided therein, and substantially all the relevant electrical and/or electronic 30 circuits associated with the machine. In addition, preferably on its rear wall, the panel 6 is provided with at least one electrical connector 14 for releasable connection of the components accommodated in the panel (and in particular said devices 8-11) to the adjacent general wiring harness 5 of the machine, which is accommodated in the base 35 portion 3.

In that way the dishwasher according to the present invention does not require essentially any electrical connection which extends at a position corresponding to the door 2, thus eliminating any possible 5 problem in terms of safety and improving the reliability of the entire wiring harness.

This solution has the further advantage of permitting quick and convenient accessibility to the entire panel 6 which can be removed for any maintenance operations 10 by simply disconnecting the connector 14 and disengaging the panel itself from the base portion 3.

Finally the dishwasher according to the present invention is particularly suited to being inserted in built-in units without functional and/or aesthetic problems 15 insofar as the loading door 2 is substantially devoid of components and the panel 6 affords easy aesthetic adaptability.

## CLAIMS

1. A dishwasher with a panel for the devices for controlling and actuating the machine, comprising a casing provided with a front loading door and a base portion provided with a frontal recess, said panel being of a substantially box-shaped configuration and removably fixed in said recess in the base portion.
- 10 2. A dishwasher according to claim 1, wherein the front surface of said box-shaped panel is in line with the front surface of said door in the closure position.
- 15 3. A dishwasher according to claim 1 or 2, wherein the main electrical components of the machine are accommodated at said base portion and are associated with a wiring harness system wherein the box-shaped panel is provided with at least one electrical connector for releasably connecting said control and actuating devices to said wiring harness.
- 20 4. A dishwasher according to any one of claims 1 to 3 wherein said control devices comprise respective pushbutton switches and said control devices have a front actuation surface which is substantially in line with the front surface of the panel and is capable of being actuated by a foot on the part of the user.
- 25 5. A dishwasher according to any one of claims 1 to 4 wherein said actuating devices comprise display means for the operating cycles of the machine, the display means have a reading surface which is inclined inwardly of said panel and visible through a transparent window substantially in line with the front surface of the panel.

6. A dishwasher constructed and arranged to operate substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

Amendments to the claims have been filed as follows

1. A dishwasher with a panel for the devices for controlling and actuating the machine, comprising a casing provided with a front loading door and a base portion provided with a frontal recess, said panel being of a substantially box-shaped configuration and removably fixed in said recess in the base portion, wherein the main electrical components of the machine are accommodated at said base portion and are associated with a wiring harness system wherein the box-shaped panel is provided with at least one electrical connector for releasably connecting said control and actuating devices to said wiring harness.
- 15 2. A dishwasher according to claim 1, wherein the front surface of said box-shaped panel is in line with the front surface of said door in the closure position.
3. A dishwasher according to any one of claims 1 to 2 wherein said control devices comprise respective pushbutton switches and said control devices have a front actuation surface which is substantially in line with the front surface of the panel and is capable of being actuated by a foot on the part of the user.
- 25 4. A dishwasher according to any one of claims 1 to 3 wherein said actuating devices comprise display means for the operating cycles of the machine, the display means have a reading surface which is inclined inwardly of said panel and visible through a transparent window substantially in line with the front surface of the panel.
- 30 5. A dishwasher constructed and arranged to operate substantially as hereinbefore described with reference to and as illustrated in the accompanying drawings.

Examiner's report to the Comptroller under  
Section 17 (The Search Report)

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## Relevant Technical fields

(i) UK CI (Edition K ) A4F D1A (AFA)

(ii) Int CL (Edition 5 ) A47L; D06F

Search Examiner

P T SQUIRE

## Databases (see over)

(i) UK Patent Office

(ii) ONLINE DATABASES: WPI

Date of Search

13 JULY 1992

Documents considered relevant following a search in respect of claims

1-6

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X	GB 1244979 (HOBART) See page 3 lines 55-56 and 121-125 and page 4 lines 39-41 and 113-114	1, 2

Category	Identity of document and relevant passages	Relevant to claim(s)

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